

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Washing Device for Blanket Cylinders of Rotary Printing Machines

We, MASCHINENFABRIK AUGSBURG-NURNBERG AKTIENGESELLSCHAFT, a German Company, of Stadtbachstrasse 1, 8900 Augsburg 2, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a washing device for blanket cylinders in rotary printing machines.

According to the present invention there is provided a washing device for a blanket cylinder in a rotary printing machine, said device comprising a fountain roller disposed in a washing liquid fountain and a cleaning roller which is arranged to be in bearing contact with the fountain roller and which is adapted to be applied against the blanket cylinder, the cleaning roller being provided with a hard peripheral surface which incorporates a plurality of grooves, and being arranged to be rotated at a higher or lower peripheral speed than the blanket cylinder and in a direction which is opposite to the direction of rotation of the blanket cylinder.

In order that the invention may be more fully understood some embodiments in accordance therewith will now be described by way of example with reference to the accompanying drawings, in which;

Figure 1 is a diagrammatic view of an offset printing machine for recto and verso printing of a paper web,

Figure 2 is a view of a cleaning roller,

Figure 3 shows another form of cleaning roller,

Figure 4 shows a section taken on the line IV—IV of Figure 3.

In the printing machine shown diagram-

matically in Figure 1 the blanket cylinders of the two printing units are designated as 1, the plate cylinders as 2, and the individual rollers of the dampening system as 3, 4. A paper web 5 is taken through between the two blanket cylinders for printing on both sides. In the region of each of the blanket cylinders there is provided a washing device 6 which comprises a fountain 7 containing a washing liquid, a fountain roller 8 and a cleaning roller 9. It should be appreciated that a washing device of this kind can also be used with offset sheet printing machines and rotary presses wherein the rubber-covered cylinder co-operates with an impression cylinder. The washing device 6 conveniently extends over the entire machine width and can be arranged to be removable. The fountain 7 itself is provided with an upwardly hinging cover 10, a washing liquid level indicator in the form of an inspection window 11 and an outlet pipe 12 for the washing liquid. In the bottom portion of the fountain 7 there are provided projections 13 in the form of ribs or pins consisting of rubber, metal, plastics material or ceramic material, which facilitate the separation of wiped-off solids in the cleaning liquid and prevent the tangling of such solids.

The cleaning roller 9 is provided with a hard surface consisting e.g. of plastics, glass or ceramic material, and incorporates a plurality of grooves 14, as shown in Figures 2 and 3. The grooves 14 may be arranged parallel to the axis of the cleaning roller 9 as shown in Figure 2 or alternatively may be spirally arranged as shown in Figure 3. The grooves 14 are intended to facilitate the stripping-off of the layer of fibrous material or the like adhering to the blanket cylinder. For this purpose, one flank

15 of each groove 14, as Figure 4 shows, is inclined at an acute angle to the peripheral surface of the cleaning roller 9 so that a kind of knife-blade action can be obtained. Preferably each cleaning roller 9 is provided with its own electric motor. Each cleaning roller 9 is arranged to be rotated at a higher or lower peripheral speed than the blanket cylinder and in a direction which is opposite to the direction of rotation of its associated blanket cylinder 1.

The cleaning rollers are mounted on levers 16 for pivotal movement about the axes of the fountain rollers 8 and are in constant bearing contact with the fountain rollers 8. The application pressure and thus the quantity of the washing liquid which is to be applied between the two rollers may be varied by adjustable means which includes springs extending between the cleaning and fountain roller shafts, the cleaning roller shafts being mounted in slots in the levers 16 so that the pressure exerted by the springs can be varied by means of wing nuts, for example.

In normal operation the cleaning rollers 9 are swung away from the blanket cylinders 7, as indicated in broken lines in the upper half of Figure 1, in a manner to be described whereas the application of the rollers 9, can be effected for example by means of pneumatic piston and cylinder means (not shown) which are operated for example by an electromagnetic valve which itself is operated when a reel changing operation is initiated. When the cleaning rollers abut on the blanket cylinders, the cleaning rollers are always lifted-away in the regions of the cylinder wells which house the apparatus for clamping the blankets to the cylinders by rotating cams arranged on the blanket cylinders in these regions. This prevents the washing medium from being squeezed-out into the cylinder wells. In contrast to the cleaning rollers 9, the peripheral surfaces of the fountain rollers 8 consist of a porous but only slightly compressible material. Dirt adhering in the grooves 14 is removed more readily when the cleaning and fountain rollers roll on one another owing to the fact that the peripheral surfaces of the fountain rollers 8 can penetrate into the grooves 14 in the cleaning rollers.

The application of the cleaning-rollers of successive printing units is conveniently carried out in succession, with a predetermined time interval between the application of successive rollers by means of timing relays in order to prevent the paper web from being too much moistened at one and the same place, with a risk of tearing. The cleaning rollers are preferably applied successively against their associated blanket cylinders when a mechanism for effecting joining of the web end of a used reel to the web end of a new reel is actuated during the reel chang-

ing operation. The washing liquid used may be any suitable kind of liquid known for this purpose, providing that it has a high rate of evaporation.

In addition to avoiding having to have the machine stopped for certain periods of time by virtue of blanket cylinder cleaning being effected during operation of the machine, the washing device described substantially reduces or avoids running-in of the ink and water systems when re-starting, running-through temperature and register variations owing to drying means having become cooled, and also the production of misprints owing to paper tension decrease and compensation. The washing device described requires little outlay, is of compact construction and also affords a particular advantage in the case of so-called machine-coated papers.

The washing device described enables only a precisely determined small quantity of washing liquid to be transferred to the blanket cylinder, this quantity being adequate to soften and wipe-off the fibre particles and the like adhering to the said cylinder. It should be appreciated that instead of the automatic operation when reel changing which has been described hereinbefore, it is also possible to operate in accordance with a predetermined choice, for example when an adjustable predetermined quantity of printed sheets is reached.

WHAT WE CLAIM IS—

1. A washing device for a blanket cylinder in a rotary printing machine, said device comprising a fountain roller disposed in a washing liquid fountain and a cleaning roller which is arranged to be in bearing contact with the fountain roller and which is adapted to be applied against the blanket cylinder, the cleaning roller being provided with a hard peripheral surface which incorporates a plurality of grooves, and being arranged to be rotated at a higher or lower peripheral speed than the blanket cylinder and in a direction which is opposite to the direction of rotation of the blanket cylinder.

2. A washing device according to claim 1, wherein said grooves are disposed parallel to the axis of the cleaning roller.

3. A washing device according to claim 1, wherein said grooves are spirally arranged.

4. A washing device according to any one of claims 1 to 3, wherein adjustable means are provided for varying the bearing pressure between the cleaning roller and the fountain roller.

5. A washing device according to any one of claims 1 to 4, wherein the peripheral surface of the fountain roller consists of a porous but only slightly compressible material.

6. A washing device according to any one of claims 1 to 5, wherein the peripheral surface

of the cleaning roller consists of plastics, glass or ceramic material.

7. A washing device according to any one of claims 1 to 6, wherein one of the flanks of each groove is inclined at an acute angle to the peripheral surface of the cleaning roller.

8. A washing device according to any one of claims 1 to 7, wherein the washing liquid fountain is provided in its bottom portion with rib-like or pin-like projections.

9. A washing device according to any one of claims 1 to 8, wherein the washing liquid fountain is provided with a washing liquid level indicator and a washing liquid outlet.

10. A washing device according to any preceding claim, and further including an electric motor for driving the cleaning roller.

11. A washing device according to any one of claims 1 to 10, wherein the cleaning roller is mounted on levers for pivotal movement about the axis of the fountain roller, pneumatically operated piston and cylinder means and electromagnetic control valve means being provided for effecting pivotal movement towards the blanket cylinder.

12. A washing device according to claim 11, wherein, during operation of the machine with the cleaning roller applied against the blanket cylinder by said pneumatically operated piston and cylinder means, the cleaning roller is pivoted away from the blanket

cylinder in the region of the cylinder well which houses apparatus for clamping the blanket to the cylinder by cams mounted on the blanket cylinder in said region.

13. A washing device according to claim 12, wherein the device is removably mounted in the printing machine.

14. A rotary printing machine having a number of printing units arranged in series and incorporating for each blanket cylinder of each unit a washing device as claimed in any one of claims 12 to 13, wherein timing relays are provided so that, when a mechanism which effects joining of the web end of a used reel to the web end of a new reel is actuated, the cleaning rollers are successively applied against their associated blanket cylinders with a predetermined time interval between the application of successive cleaning rollers.

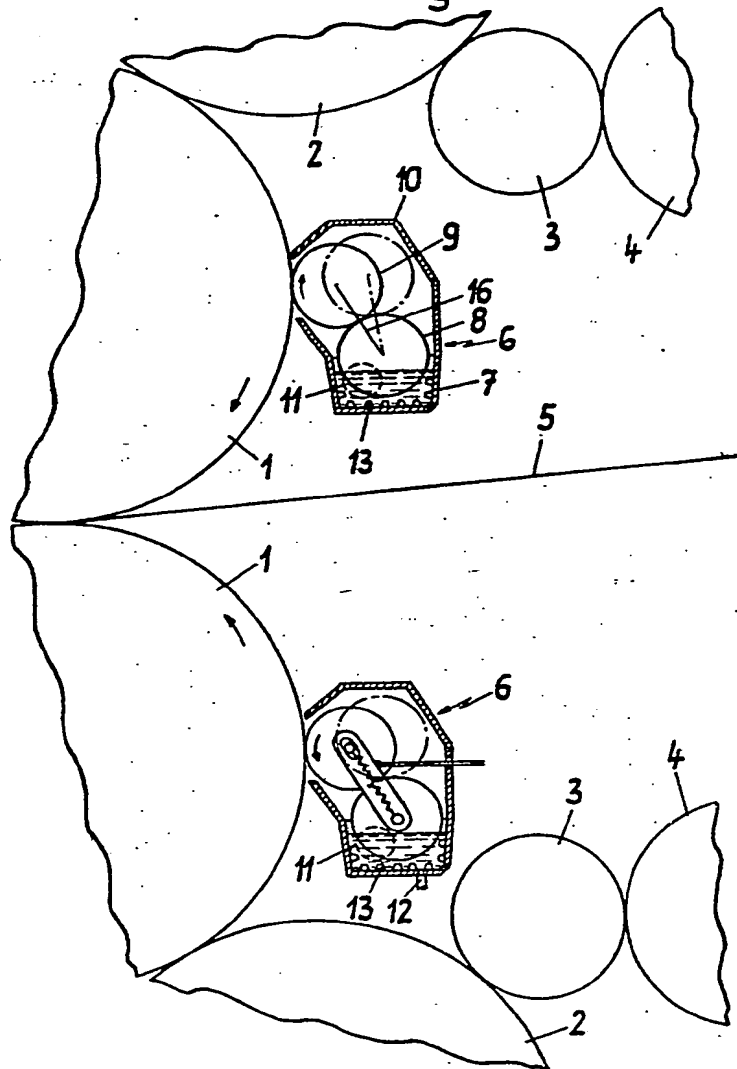
15. A washing device for a blanket cylinder in a rotary printing machine, substantially as hereinbefore described with reference to Figures 1, 2 and 4 or Figures 1, 3 and 4 of the accompanying drawing.

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Fig.1



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COMPLETE SPECIFICATION

2 SHEETS

*This drawing is a reproduction of
the Original on a reduced scale*

Sheet 2

Fig.2

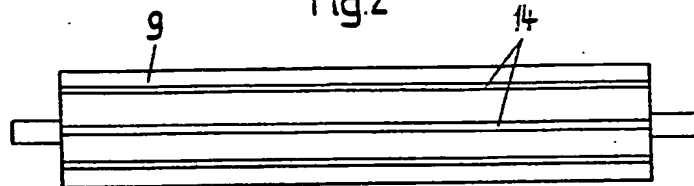


Fig.3

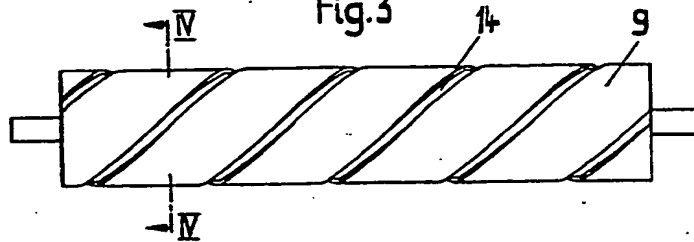


Fig.4

